

# Lummi Nation Wetland and Habitat Mitigation Bank



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November 2015



# Purpose Statement

- The purpose of this presentation is to:
  - Describe **why** the Lummi government decided to develop the Lummi Nation Wetland and Habitat Mitigation Bank;
  - Identify **who** in the Lummi government is leading the effort and managing the mitigation bank;
  - Describe **where** the mitigation bank and associated service area are located and **what** is being done to generate mitigation credits;
  - Identify **when** the Lummi Nation Wetland and Habitat Mitigation became operational; and
  - Describe **how** the mitigation bank is administered (i.e., credit allocation, credit pricing, and the decision-making process that is used to issue mitigation credits to specific projects) and next steps.

# Lummi Wetland Management Program

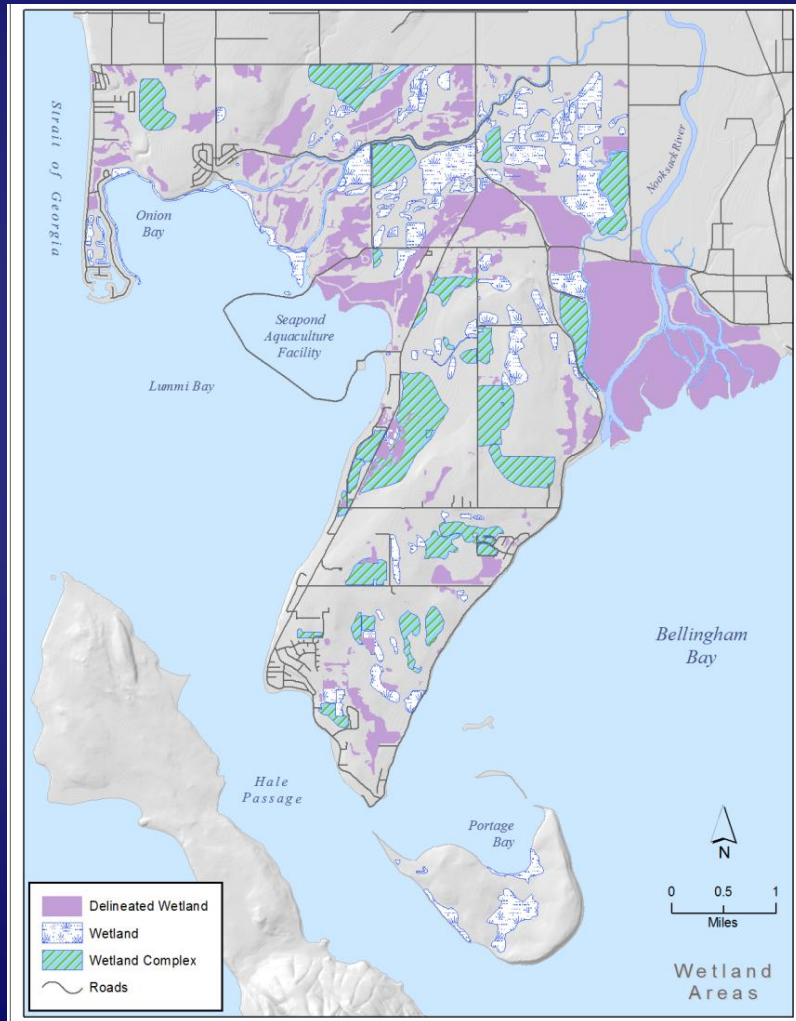
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Why did the Lummi  
Government decide to  
develop the Lummi Nation  
Wetland and Habitat  
Mitigation Bank?

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# Lummi Nation Wetland and Habitat Mitigation Bank



- The Lummi Nation conducted a Reservation-wide wetland inventory in 1999.
- The inventory indicated that about 43 percent of the Reservation uplands are wetlands (60% of these wetland areas are in the flood plain).



# Why a Mitigation Bank?

- The Lummi Nation needed an administratively efficient, technically sound, and legally defensible mechanism to effectively manage the Reservation wetland resources because of the:
  - Number and distribution of wetlands,
  - Limited land base,
  - Land ownership on the Reservation,
  - Need for tribal housing,
  - Need for commercial and municipal development.



# Why a Mitigation Bank?

- For over 20 years wetland professionals have agreed that after mitigation sequencing has occurred, mitigation banking is a viable and potentially a more desirable alternative to conventional on-site mitigation of unavoidable wetland impacts associated with development.
- Mitigation banks provides “advanced” mitigation (i.e., ecological benefits occur prior to impacts).



# Benefits of a Mitigation Bank

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- The size and location of mitigation banks can provide more of an ecological “lift” than smaller, distributed mitigation efforts.
  - More accountable – higher success rates.
  - More efficient use of permitting agency resources.
  - More “value added” use of a limited land base than restoration projects, which generally have the same goals but different funding sources.
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# Lummi Wetland Management Program

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Who in the Lummi government is leading the effort to develop the Lummi Nation Wetland and Habitat Mitigation Bank and who is managing the Bank?

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# Who is the Mitigation Bank Lead Staff?



- The Water Resources Division of the Lummi Natural Resources Department is responsible for developing and implementing a watershed-based Comprehensive Water Resources Management Program (CWRMP).
- The Comprehensive Water Resources Management Program (CWRMP) includes a Wetland Management Program.
- The Lummi Nation Wetland and Habitat Mitigation Bank is part of the Wetland Management Program.

# Who is the Mitigation Bank Lead Staff?

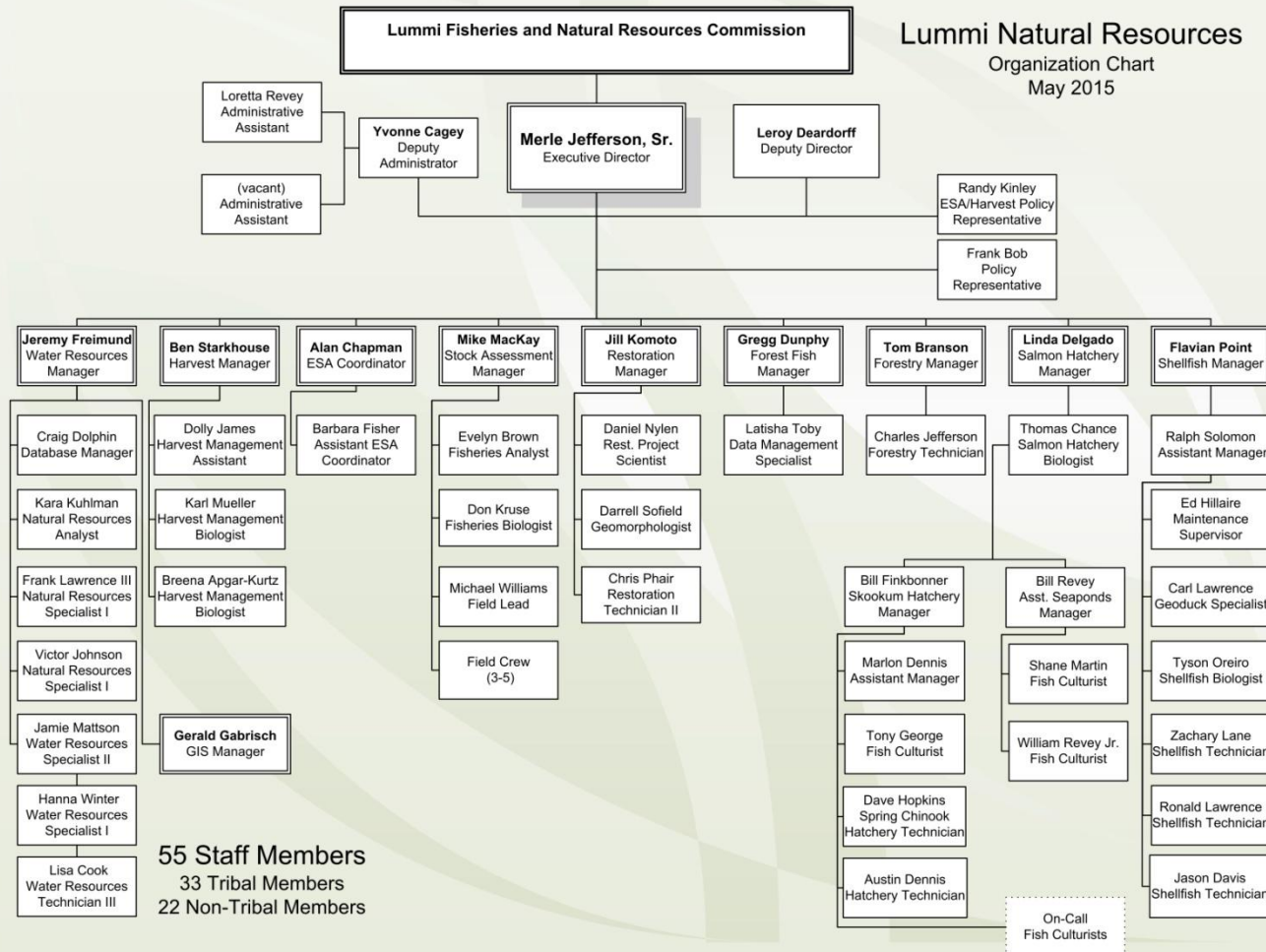


- The Lummi Natural Resources Department, in coordination with the Lummi Planning Department and the Office of the Reservation Attorney, is leading the effort to establish and manage the mitigation bank.
- In addition to Lummi staff members, contracted technical support for the Reservation-wide wetland inventory was provided by Sheldon and Associates; ESA is supporting the mitigation bank.

# Water Resources/GIS Divisions



**Lummi Natural Resources**  
Organization Chart  
May 2015



# Lummi Wetland Management Program

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What is the Lummi Nation  
Wetland and Habitat  
Mitigation Bank and where is  
the service area?

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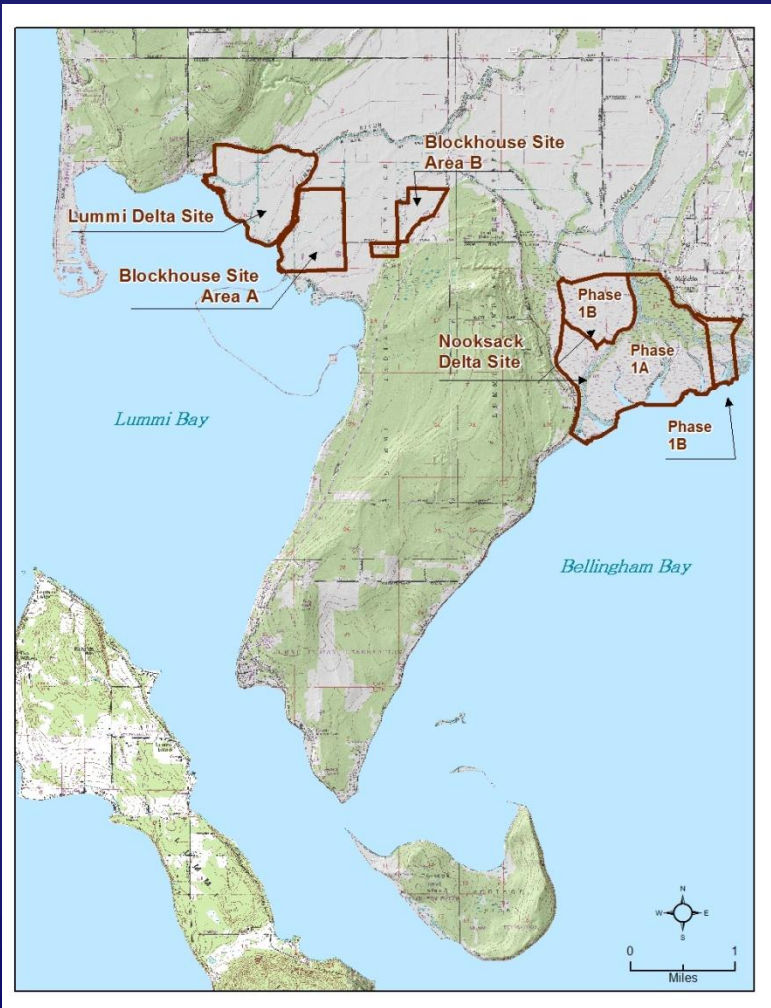
# Lummi Nation WHMB Functions



- Will generate mitigation credits to compensate for unavoidable wetland and related habitat impacts occurring on the Reservation and within the service area.
- Provide for long-term mitigation needs of tribal members, the tribal government, and public and private end users.
- Ensure effective compensation and replacement for development impacts and advance Lummi Nation goals.



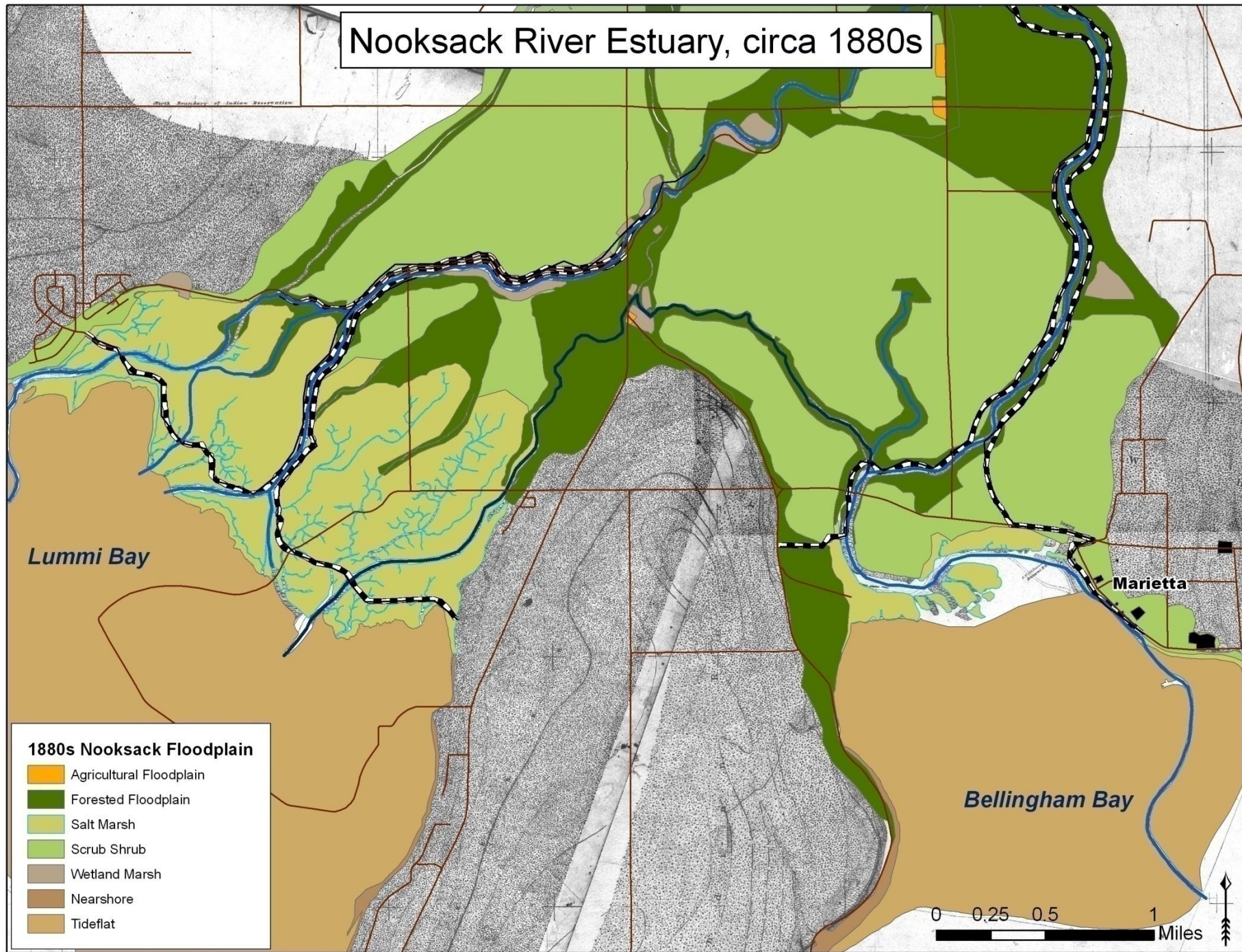
# Lummi Nation Wetland and Habitat Mitigation Bank



- Bank is comprised of approximately 1,965 acres on three separate sites on the Reservation: Nooksack Delta Site, Blockhouse Site, and the Lummi Delta Site.
- The WHMB is being developed in phases due to budget constraints and the need to own the entirety of each mitigation site – Lummi currently owns 60 percent of the total area.
- The WHMB is part of an overall restoration effort of the estuary and is co-located with several restoration projects.

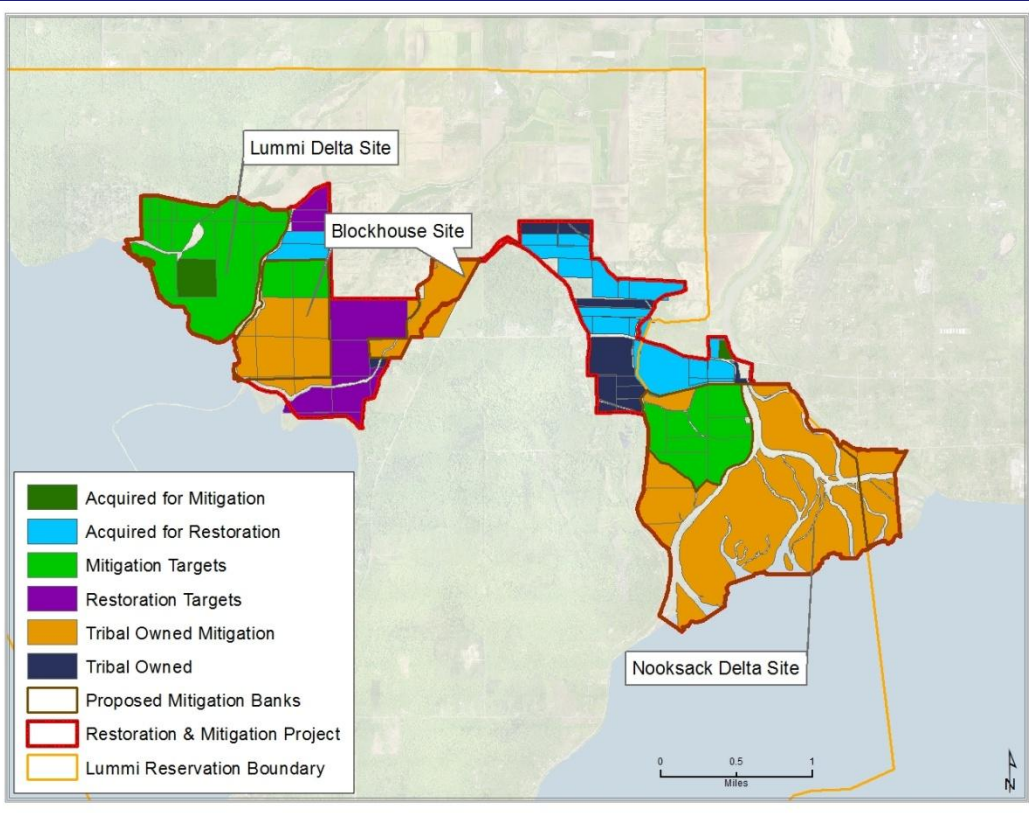


# Nooksack River Estuary, circa 1880s

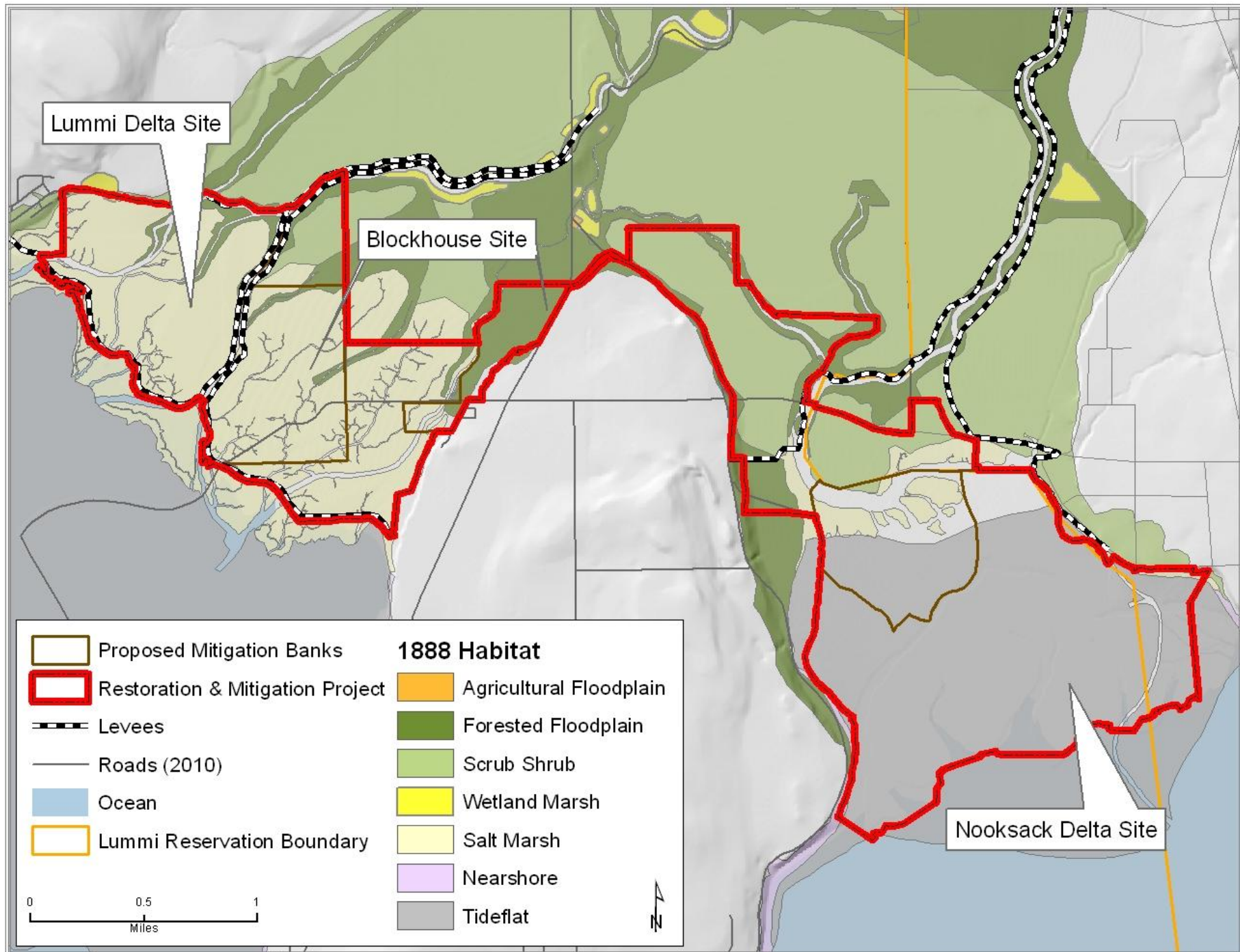




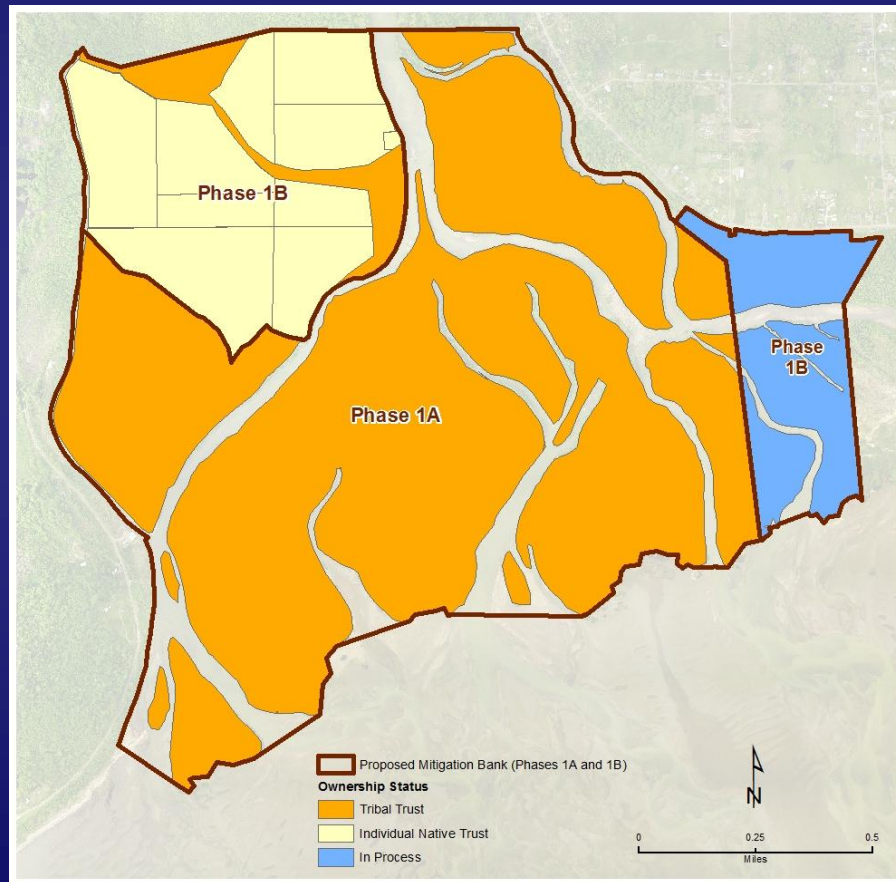
# Lummi Nation Wetland and Habitat Mitigation Bank



- During 2009, the Lummi Indian Business Council (LIBC) passed Resolution 2009-094.
- Reso. 2009-094 designated approximately 2,770 acres of the Reservation flood plains for wetland and habitat mitigation banking purposes and for restoration projects.
- This area represents approximately 22 percent of the Reservation land base (not including the 7,000 acres of tidelands).



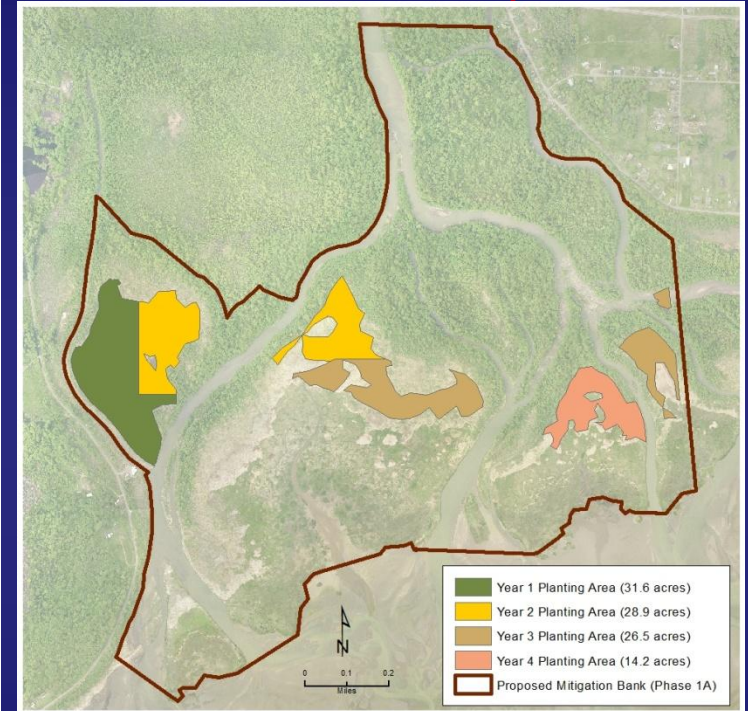
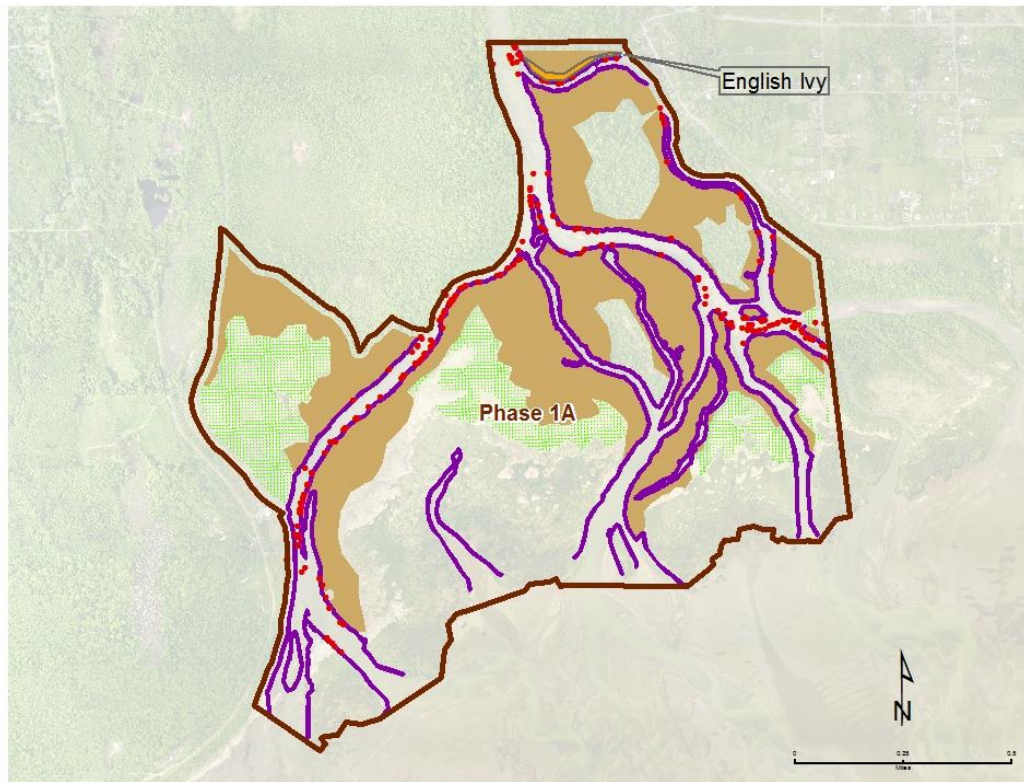
# Lummi Nation WHMB – Nooksack Delta Site



- Nooksack Delta Site has two phases due to land ownership – Phase 1A and Phase 1B.
- Phase 1A is comprised of 842 acres; Phase 1B is comprised of 337 acres (1,179 acres total).
- Enhancement credits to be generated through:
  - Locating, mapping, removing, maintaining, and monitoring invasive species to promote native species diversity and wetland function and values.
  - Under planting of native conifer trees in large areas to increase the quality of wildlife habitats and wetland functions and values.
- Estimated 239 potential credits (126.5 in Phase 1A).

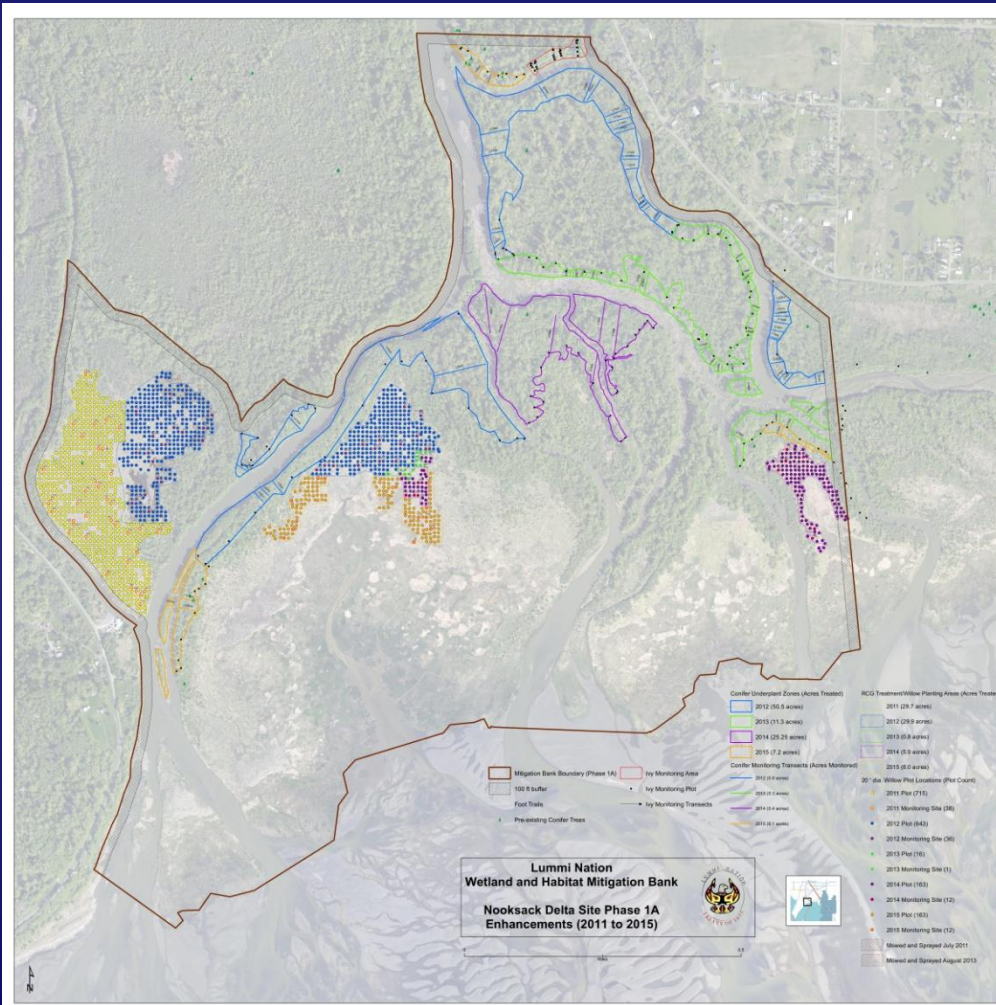


# Lummi Nation WHMB – Nooksack Delta Site



- Conifer Underplanting
- reed canary grass mowing and spraying
- ivy removal
- knotweed stem injection and removal
- 100 ft buffer
- 20 foot dia. Willow Planting Patches
- 15 ft Knotweed Treatment And Monitoring Area
- Proposed Mitigation Bank (Phase 1A)

# Lummi Nation WHMB – Nooksack Delta Site

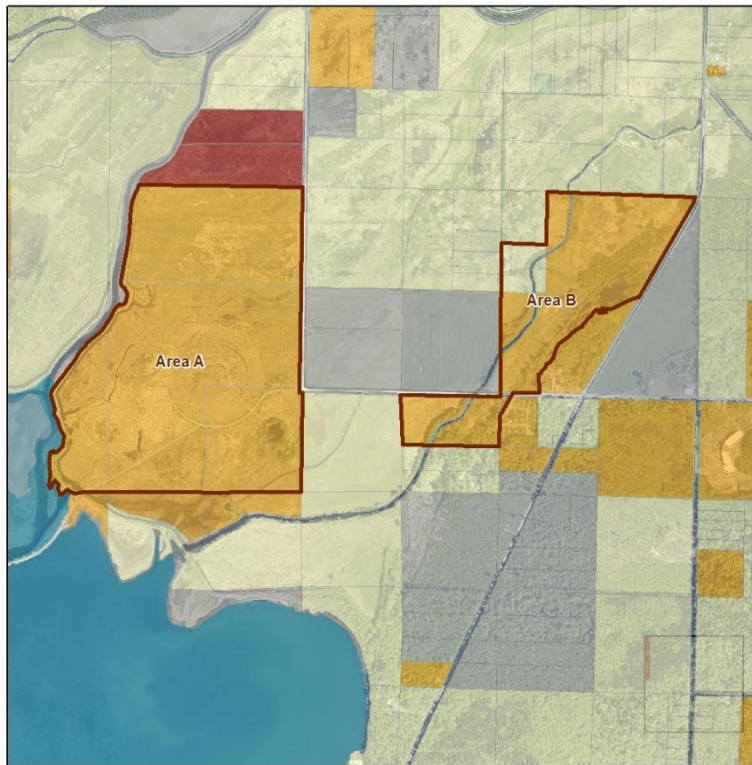


Over the 2011 through 2015 period:

- 74.3 acres of wetlands enhancement through reed canary grass control/willow plantings – nearly 100,000 willow stakes planted;
- 98.9 acres of wetlands enhancement through conifer under plantings – over 50,000 bare root trees planted; and
- 2.1 acres of wetlands enhancement through English Ivy control.



# Lummi Nation WHMB – Blockhouse Site



- Blockhouse Site is comprised of two areas: Area A and Area B.
- Area A is about 265 acres; Area B is about 109 acres (374 acres total).
- Although there are two areas, this site will be developed as a single phase.
- Because the LIBC currently owns 84 percent of the Blockhouse Site, this site will likely be developed as Phase 2 of the mitigation bank (2015-2016).

# Lummi Nation WHMB – Blockhouse Site



- Re-establishment and rehabilitation credits to be generated by:
  - Exposing existing palustrine emergent wetlands and areas that are currently not wetlands to direct tidal influence during higher tidal conditions;
  - Opening remnant sloughs and distributary channels that are not connected to tidal hydrology.
  - Replacing existing tide gates with self-regulating tide gates.
- Intend to seek habitat credits as part of the Blockhouse Site development.
- Estimated 249 potential credits (1.5:1)

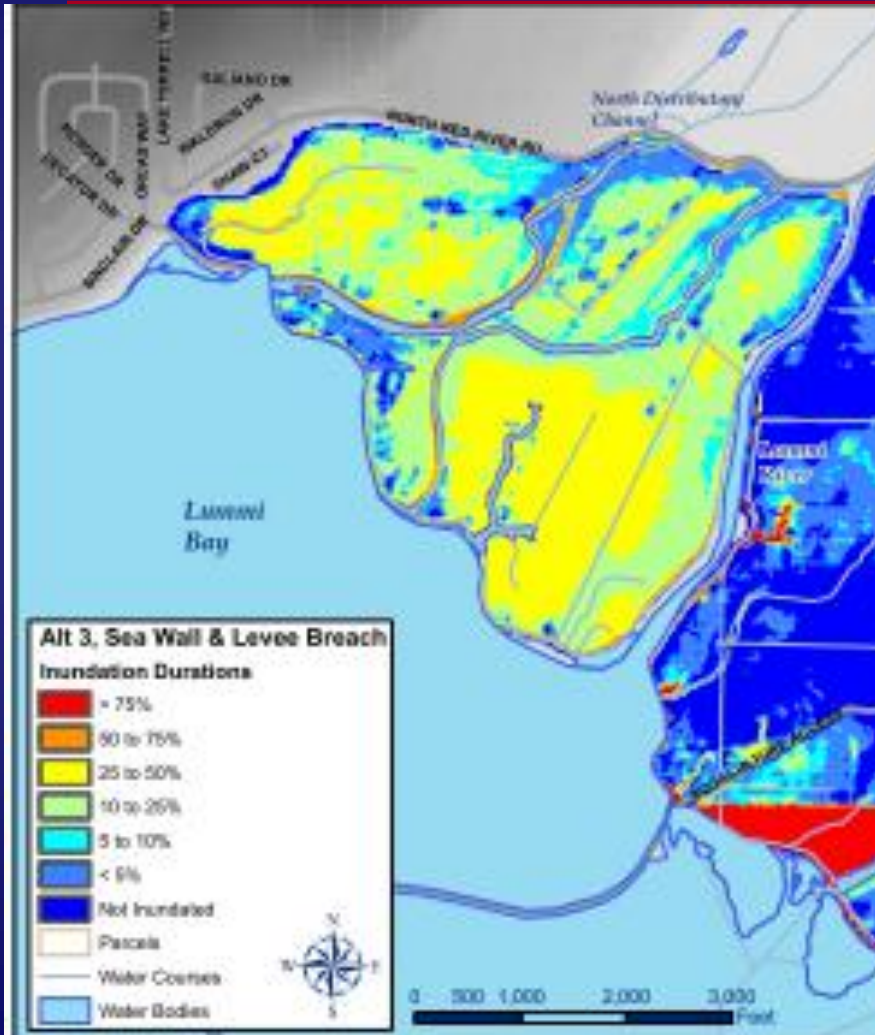


# Lummi Nation WHMB – Lummi Delta Site



- Lummi Delta Site is approximately 412 acres.
- The LIBC currently owns 10 percent (40 acres) – Site will be developed as Phase 3.
- Biggest ecological impact but most expensive phase of the WHMB due to land acquisition costs, cost of ring dike, cost of sea wall and levee breaches.

# Lummi Nation WHMB – Lummi Delta Site



- Hydraulic Model was used to evaluate four restoration alternatives for the Lummi Bay area.
- Restoration alternatives included combinations of breaching or removing the existing sea wall along Lummi Bay, the levee along the Lummi River, and adjusting the existing tide gates.
- Results from Alternative 3 were used to design the Lummi Delta Site mitigation plan.

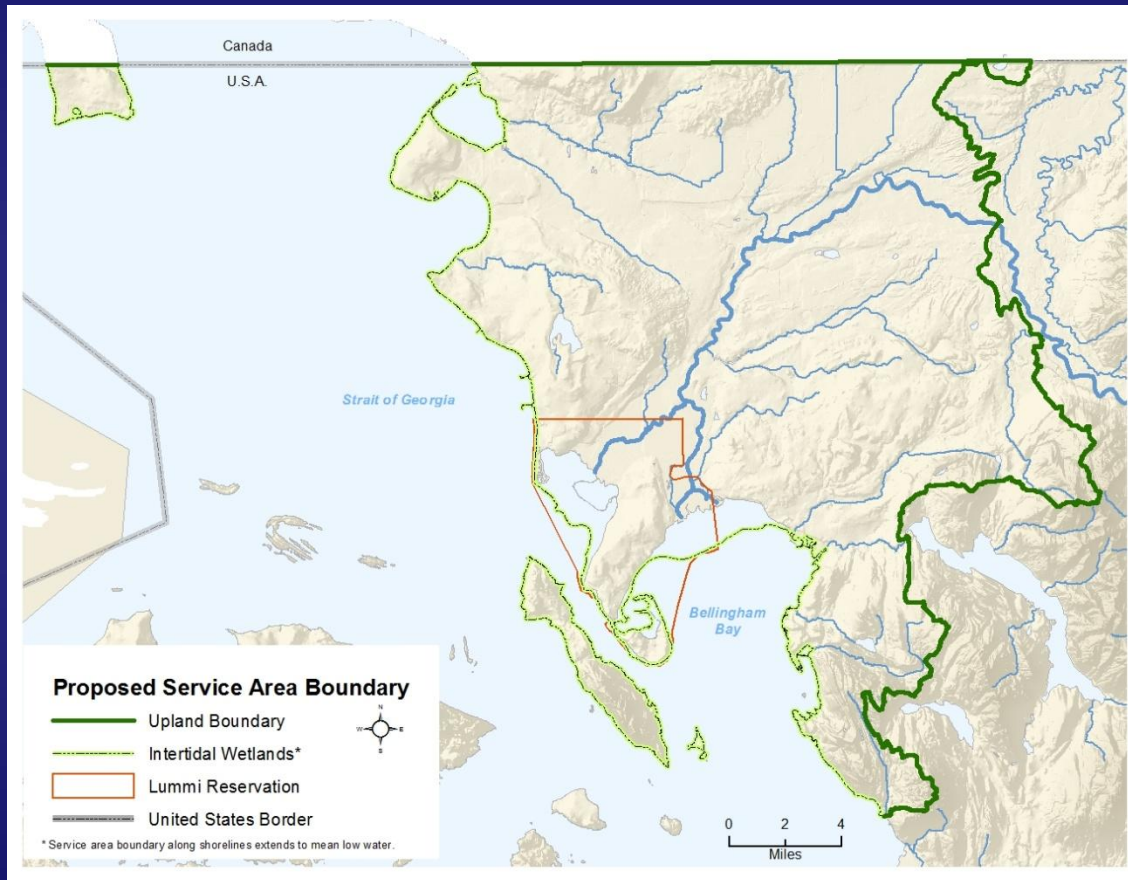
# Lummi Nation WHMB – Lummi Delta Site



- Re-establishment and rehabilitation credits to be generated by:
  - Removing existing tide gates and portions of dikes to allow the redevelopment of off-channel and side channel salmonid habitat.
  - Remove portions of dike along the eastern boundary to allow the existing channel to meander thereby enhancing and creating additional intertidal and subtidal emergent wetland habitat.
- Intend to seek habitat credits as part of the Lummi Delta Site development.
- Estimated 343 potential credits (1:1 and 1.5:1 ratios)



# Lummi Nation WHMB – Service Area



- The Lummi Nation WHMB Service Area is the Lummi Indian Reservation, the lowland areas of Whatcom County that discharge to the Nooksack River, and coastal watersheds from the Canadian border to Colony Creek.
- Includes Point Roberts and Lummi Island.
- Does not include Lake Whatcom watershed.

# Lummi Wetland Management Program

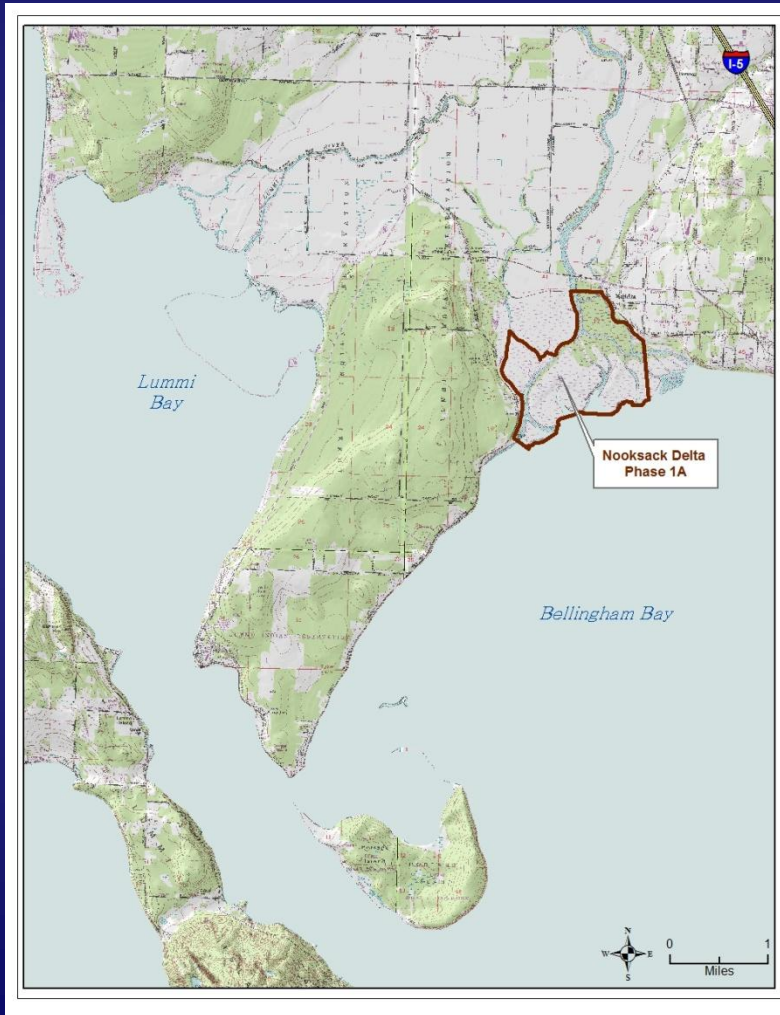
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When did the Lummi Nation  
Wetland and Habitat  
Mitigation Bank become  
operational?

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# Lummi Nation WHMB Development



- Completed mitigation banking assessment report in 2002.
- Version 1 of the Prospectus was published in 2004.
- Version 2 of the Prospectus was published in 2007.
- Version 3 of the Prospectus published in October 2008.
- Corps of Engineers public comment period ended in January 2009.
- Three separate locations – now being developed in Phases.
- MBI for Phase 1A Executed on July 6, 2012.
- 19 credits released by IRT.

# When did the Lummi Nation WHMB Become Operational?



- The original goal was to have an operating wetland mitigation bank by December 31, 2005 based on the original 2004 prospectus.
- However, a range of identified issues needed to be resolved with the IRT including: Service Area, MBRT/IRT Composition, Land Ownership, Financial Assurances, Conservation Easement Content and Grantee, Mitigation Types, Credit Generation Ratios, Buffers, Monitoring and Maintenance.



# When did the Lummi Nation WHMB Become Operational?



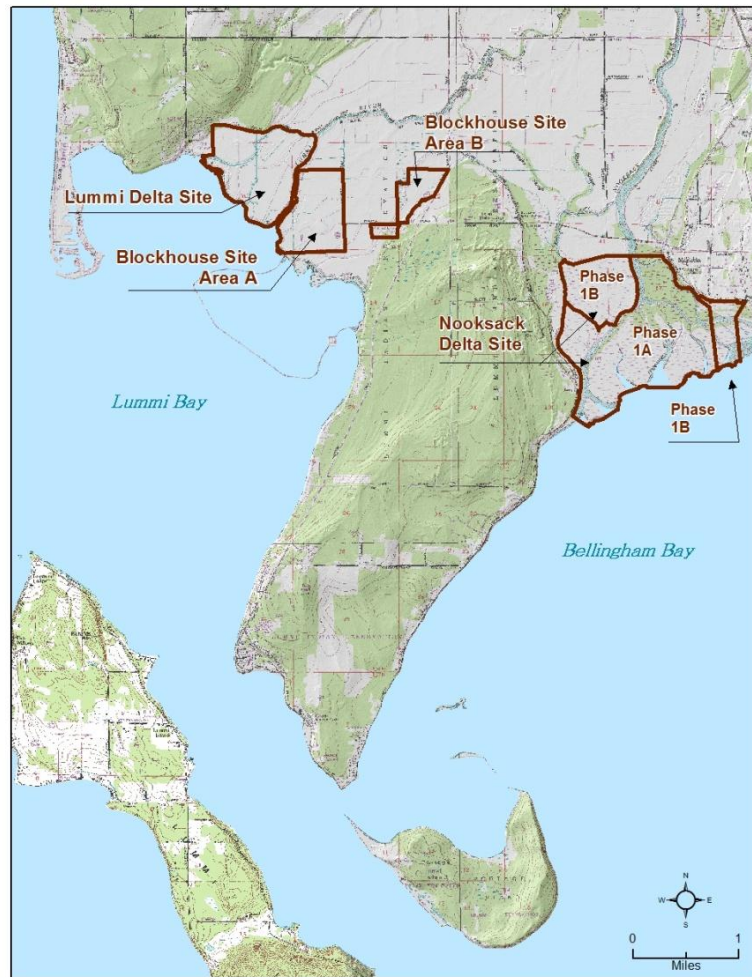
- Needed to resolve all of the identified issues with the IRT and internal issues related to how the credits created by the mitigation bank will be allocated. That is, of the available credits,
  - How many will be available for individual tribal member housing and tribal residential housing projects and at what cost?
  - How many will be available for tribal municipal or commercial projects and at what cost?
  - How many will be available for off-Reservation project proponents and at what cost?



# Roles of Key Parties

- LNR is responsible for developing and operating the mitigation bank (i.e., enhancement, monitoring, reporting, credit transactions).
- Lummi government owns the land.
- IRT currently comprised of the Corps, EPA, NMFS, USFWS – only Corps and EPA signed initial MBI (Phase 1A).
- Washington Department of Ecology is an IRT participant but not a signatory party.
- Northwest Indian Fisheries Commission (NWIFC) holds the Conservation Easement.

# Lummi Nation Wetland and Habitat Mitigation Bank



- Phase 1A – currently only wetland mitigation credits (enhancing palustrine forested, scrub-shrub, and emergent wetlands), but left door open for habitat credits.
- Blockhouse and Lummi Delta sites (Phase 2 and Phase 3) – both wetland and habitat credits as these phases will re-establish salt marsh habitat and reconnect historic channels.
- NOAA Fisheries endorsed the Habitat Equivalency Analysis (HEA) method for habitat credit generation and debiting.
- Habitat credits for salmonids.

# Lummi Wetland Management Program

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How Will Credits Generated  
by the Mitigation Bank be  
Allocated and Sold?

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# Credit Allocation

- The number of credits that will be generated by the mitigation bank will not be known for sure until the Mitigation Banking Instruments (MBI) are established for each phase.
- All credits for each phase will not be awarded immediately – credit release will be based on development and performance of the bank.
- For the purposes of a credit allocation plan, we assumed that the fully developed mitigation bank would generate 728 credits.



# Monetary Value of Credits

- In the Puget Sound Region, wetland mitigation credits cost between \$200,000 to \$300,000.
- If the average cost of \$250,000 is assumed, and all 728 credits awarded and sold, the mitigation bank would generate \$182 million in revenue.
- The rate and value that credits are sold depends on economic conditions and the market.
- As described below, Lummi does not plan to sell all of the mitigation credits.

# Estimated Mitigation Bank Development and O&M Costs



- Since funding is needed to fully develop the mitigation bank and to operate and maintain the mitigation bank, some of the credits will need to be sold.
- It is estimated that approximately \$5 million is needed to fully establish the entire mitigation bank (buy land, build infrastructure).
- Approximately \$165,000 is needed annually to continue development and to operate and maintain the mitigation bank.





# Adopted Credit Allocation

- Six potential “markets” for mitigation credits were identified:
  - Individual tribal members for single-family residential housing (non-commercial).
  - Tribal Government Housing Projects
  - Tribal Government Municipal Development
  - Tribal Government Commercial Development
  - Individual Tribal Member Commercial Development Projects
  - Non-Member Development Projects



# Adopted Credit Allocation

Market	Number of Credits	Percent Allocation
Individual tribal member SFR housing (non-commercial)	170	23.4
Tribal Government Housing Development Projects	170	23.4
Tribal Government Municipal Development Projects	169	23.2
Tribal Government Commercial Development Projects	169	23.2
Individual Tribal Member Commercial Development Project	25	3.4
Non-Member Development Projects	25	3.4
<b>Total</b>	<b>728</b>	<b>100</b>



# Adopted Discount Rates

Market	Discount Rate	Resultant Cost per Credit
Individual tribal member SFR housing (non-commercial)	100%	\$0
Tribal Government Housing Development Projects	50%	\$150,000
Tribal Government Municipal Development Projects	50%	\$150,000
Tribal Government Commercial Development Projects	25%	\$225,000
Individual Tribal Member Commercial Development Project	25%	\$225,000
Non-Member Development Projects	0%	\$300,000

# Process for Using Mitigation Bank Credits



- Conduct Mitigation Sequencing.
- Determine if unavoidable impact is within the Service Area.
- Determine the number of mitigation credits needed for impacts to wetlands and buffers.

Resource Impact	Bank Credits: Impact Acreage
Wetland, Category I	Case-by-Case
Wetland, Category II	1.2:1
Wetland, Category III	1:1
Wetland, Category IV	0.85:1



# Process for Using Mitigation Bank Credits



- Complete and submit a Lummi Nation WHMB Mitigation Credit Application form.
- Submit a Wetland Mitigation Bank Use Plan to the Corps of Engineers (see the IRT Guidance Document).
- Obtain Regulatory Agency authorization to use the mitigation bank.
- Obtain Lummi Nation agreement to allocate mitigation bank credits for the project.

# Allocation Decision-Making for Specific Projects



- Technical staff (Water Resources Manager) prepares a summary report and recommendations for consideration by an Administrative Panel.
- The Administrative Panel is comprised of the Lummi Natural Resources Department Director, Planning Department Director, and Cultural Resources Department Director or designee(s).
- The Panel considers technical recommendations and decides based on consensus.
- Panel members sign a decision document that identifies number and cost of credits allocated to a specific project.

# Allocation Decision-Making for Specific Projects



- During first full year of operation (2013), seven transactions totaling 4.913 credits generated \$894,300 in revenue
  - Silver Reef Casino (1)
  - Washington Department of Transportation (2)
  - Lummi Planning Department (2)
  - Private Developers (2)
- As of November 1, 2015, 7.8 credits have been sold for \$1,713,771 in revenue
- Information tracked in a custom database and reported annually to the IRT



# Next Steps

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- Continue administration of the bank
  - Achieve Phase 1A performance objectives
  - Purchase all land within the bank – Cobell Buy-Back Program
  - Define methodology for Fish Habitat Debits/Credits (e.g., NMFS Habitat Equivalency Analysis)
  - Develop remaining phases of the bank
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# Summary and Conclusion

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# Summary and Conclusion

- Wetland management is a component of the Lummi Nation's watershed-based Comprehensive Water Resources Management Program.
- Because of the number and distribution of wetlands on the Reservation, an administratively efficient, technically sound, and legally defensible mechanism is needed to effectively managed the wetland resources – a wetland and habitat mitigation bank is a key tool.
- The Lummi Nation WHMB has a high probability of success since hydric soils already exist – essentially restoring historic salt marsh areas.



# Summary and Conclusion

- Establishing the Lummi Nation WHMB represents a regionally significant opportunity for ecological restoration on a large scale.
  - 1,965 acres of mitigation bank area combined with 805 acres of restoration project area (2,770 acre footprint).
- Total number of credits that will be generated is still under discussion – our estimate is about 728 credits.
- Developing and implementing a wetland and habitat mitigation bank is a complex and time consuming undertaking.



# Summary and Conclusion

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- LIBC Resolution 2009-094 directed the Lummi Natural Resources Department and the Lummi Planning Department to develop a mechanism to administer the mitigation bank, including the allocation of credits generated by the mitigation bank, for review and approval by the LIBC.
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# Summary and Conclusion

- The Natural Resources, Planning, and Cultural Resources Protection commissions endorsed, and the LIBC adopted, a proposed mitigation bank credit allocation plan, cost structure, and decision-making process for projects.
- Phase 1A of the mitigation bank is operational; the remaining phases are being developed.
- See LNR website for more information, application form, and IRT Guidance document for mitigation bank use plans (<http://lnnr.lummi-nsn.gov/LummiWebsite/Website.php?PageID=66>)

# Questions??



## **Contact Information:**

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